Name: _____ Date: _____ Team: _____

Lab Experiment # 10

Radiographic Grids and Scatter Radiation

Direct Radiography

Purpose

This experiment is designed to demonstrate the effect of scatter radiation on the visibility of detail in digital imaging.

Learning Objectives

After completing this lab, you should be able to:

1. Use the laboratory equipment properly.
2. Set up the control console and ceiling tube mount correctly.
3. Function effectively in group work.
4. Perform the experiment independently.
5. Set up the control console.
6. Explain the effect of scatter radiation on the visibility of detail of a digital image.
7. Determine which radiographic studies require the use of a radiographic grid.

Materials Needed

- Direct Radiography Wireless Image Receptor (FPD)
- Whole Body Phantom
- Set of radiopaque markers

Experimental Setup

Instructions for Exposure 1 – 4 using Bucky

1. Place a DR image receptor in the **bucky lengthwise** and set the SID to 40 inches.
2. Place the **Whole-Body Phantom** on the tabletop, positioned for various projections as indicated on the worksheet
3. Set the control console to **manual** mode.
4. Make exposure 1-3 using the settings indicated on the worksheet and derived from the technique chart.

Technique Worksheet

Direct Radiography Using Grid (Bucky)

Worksheet

	Anatomy	mode	kV	mAs	Back-Up Time	Radiation Detectors	Density Selector	Grid	Grid Ratio	SID	TEI EI DI
1	Knee	manual						bucky	10:1	40”	
2	Pelvis AP	manual						bucky	10:1	40”	
3	Shoulder	manual						bucky	10:1	40”	
4	Chest AP	manual						bucky	10:1	40”	

Instructions for Exposure 5 – 8 using the TT technique (non-grid)

1. Place a DR image receptor in the **bucky lengthwise, remove the radiographic grid,** and set the SID to 40 inches.
2. Place the **Whole-Body Phantom** on the tabletop, positioned for various projections as indicated on the worksheet
3. Set the control console to **manual** mode.
4. **Calculate the new technique for exposures 5-8 using the Tabletop method and the Grid Conversion Factor (GCF),** based on the exposure values obtained from the previous grid techniques (Exposures 1–4).

Direct Radiography NO Grid

Worksheet

	Anatomy	mode	kV	mAs	Back-Up Time	Radiation Detectors	Density Selector	Grid	Grid Ratio	SID	TEI EI DI
5	**Knee**	manual						no	n/a	40”	
6	**Pelvis AP**	manual						no	n/a	40”	
7	**Shoulder**	manual						no	n/a	40”	
8	**Chest AP**	manual						no	n/a	40”	

Worksheet

	TEI EI DI	Briefly describe the fog (scatter) level of each image and the visibility of detail.
1		
2		
3		
4		

5

6

7

8